We claim:

1. A synthetic resin-impregnated body, comprising:

expanded or at least partially recompressed expanded graphite;

said graphite containing one of:

at least one solvent-free, low-viscosity, storage-stable, polymerizable acrylic resin system; and

polymers obtained by curing said at least one resin system.

2. The synthetic resin-impregnated body according to claim 1, wherein said at least one acrylic resin system contains triethyleneglycol dimethacrylate and at least one initiator system.

3. The synthetic resin-impregnated body according to claim 2, wherein said at least one acrylic resin system contains azo initiators as said at least one initiator.

4. The synthetic resin-impregnated body according to claim 3, wherein said azo initiators contained in said at least one acrylic resin system are selected from the group consisting of

2,2'-dimethyl-2,2'-azodipropiononitrile, 1,1'-azobis(1-cyclohexanecarbonitrile) and azoisobutyric acid dinitrile.

5. The synthetic resin-impregnated body according to claim 1, wherein said at least one acrylic resin system has a storage stability at room temperature of more than two days.

6. The synthetic resin-impregnated body according to claim 1, wherein said at least one acrylic resin system has a storage stability at room temperature of more than two weeks.

7. The synthetic resin-impregnated body according to claim 1, including up to 50% by weight of acrylic resin.

8. The synthetic resin-impregnated body according to claim 1, including 5 to 25% by weight of acrylic resin.

9. The synthetic resin-impregnated body according to claim 1, including 10 to 20% by weight of acrylic resin.

10. The synthetic resin-impregnated body according to claim 1, wherein a primary product contains fillers selected from the group consisting of ceramic fillers, mineral fillers, electrically non-conductive fillers and electrically conductive fillers.

11. The synthetic resin-impregnated body according to claim 1, including at least two independently held together networks, one of said networks being formed of a connected framework made of expanded or expanded and thereafter at least partially recompressed graphite with good electrical conductivity as well as good thermal conductivity, and the other of said networks being a connected network made of synthetic material having penetrated into said graphite.

12. The synthetic resin-impregnated body according to claim 1, including a surface, regions close to said surface, and another part, said at least one acrylic resin system disposed only in one of said part and said regions.

13. The synthetic resin-impregnated body according to claim 1, wherein a continuous resin surface film is not present and the body is electrically conductively contactable.

14. A process for producing a body containing at least one synthetic resin, which comprises:

providing a primary product made of expanded or at least partially recompressed expanded graphite with an open pore system;

impregnating the primary product with at least one solvent-free, low-viscosity, storage-stable, polymerizable acrylic resin system to form a resin-containing, uncured intermediate product; and

finally subjecting the resin-containing, uncured intermediate product to a curing treatment for the at least one resin system.

15. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises processing the resin-containing, uncured intermediate product to form a shaped body; and carrying out the subjecting step by subjecting the uncured shaped body produced from the uncured intermediate product to a curing treatment for the at least one resin system.

16. The process for producing a body containing at least one synthetic resin according to claim 15, which further comprises simultaneously shaping the acrylic resin-containing body and curing the resin system that is present as a result of temperature impact.

17. The process for producing a body containing at least one synthetic resin according to claim 16, which further comprises providing the primary product made of expanded or at least

partially recompressed expanded graphite having an open pore system, with an ash value of not more than four per cent.

18. The process for producing a body containing at least one synthetic resin according to claim 16, which further comprises providing the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, with an ash value of not more than two per cent.

19. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises providing the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, with a bulk density in a range of from 0.1 to 1.8 g/cm^3.

20. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises providing the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, with a bulk density in a range of from 0.3 to 1.5 g/cm^3.

21. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises providing the primary product made of expanded or at least

partially recompressed expanded graphite having an open pore system, with a bulk density in a range of from 0.5 to 1.3 g/cm^3.

22. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises carrying out the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, with acrylic resins having a viscosity at room temperature of less than 100 mPa·s.

23. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises carrying out the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, with acrylic resins having a viscosity at room temperature of less than 50 mPa·s.

24. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises carrying out the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, with acrylic resins having a viscosity at room temperature of less than 20 mPa·s.

25. The process for producing a body containing at least one synthetic resin according to claim 14, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up up to 100% by weight of its own weight of acrylic resins, during the impregnating step.

26. The process for producing a body containing at least one synthetic resin according to claim 14, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up 5 to 35% by weight of its own weight of acrylic resins, during the impregnating step.

27. The process for producing a body containing at least one synthetic resin according to claim 14, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up 10 to 25% by weight of its own weight of acrylic resins, during the impregnating step.

28. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises carrying out the step of curing the acrylic resins in less than ten minutes under the effect of temperatures of up to 200°C.

29. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises carrying out the step of curing the acrylic resins in less than three minutes under the effect of temperatures of up to 200°C.

30. The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises mixing the expanded graphite with fillers selected from the group consisting of ceramic fillers, mineral fillers, electrically non-conductive fillers and electrically conductive fillers; processing the mixed expanded graphite to form a filler-containing primary product; and then impregnating the primary product with resin.

31. A sealing element, comprising:

a synthetic resin-impregnated body having expanded or at least partially recompressed expanded graphite; said graphite containing one of:

at least one solvent-free, low-viscosity, storage-stable, polymerizable acrylic resin system; and

polymers obtained by curing said at least one resin system.

32. A fuel cell component, comprising:

a synthetic resin-impregnated body having expanded or at least partially recompressed expanded graphite; said graphite containing one of:

at least one solvent-free, low-viscosity, storage-stable, polymerizable acrylic resin system; and

polymers obtained by curing said at least one resin system.

33. A heat-conducting element, comprising:

a synthetic resin-impregnated body having expanded or at least partially recompressed expanded graphite; said graphite containing one of:

at least one solvent-free, low-viscosity, storage-stable, polymerizable acrylic resin system; and

polymers obtained by curing said at least one resin system.